NORTHERN SOUTHEAST REGIONAL AQUACULTURE ASSOCIATION, INC.

(907) 747-6850
FAX (907) 747-1470
EMAIL steve_reifenstuhl@nsraa.org

1308 Sawmill Creek Road Sitka, Alaska 99835

February 10, 2011

Mr. Sam Rabung
ADF&G PNP Program Manager
P.O.Box1125526
Juneau, Alaska, 99811-5526

Dear Sam,

Re: PAR for Medvejie Hatchery 10 Million Chum Egg Increase

Please find PAR application, narrative, and graphs for 10 million chum egg increase at Medvejie Hatchery. I will submit materials electronically and hard copy via U.S. Postal Service.

Thank you for your attention to this matter.

Sincerely,

Steve Reifenstuhl

Steve Reifenstuhl,
General Manager NSRAA

PERMIT ALTERATION REQUEST

STATE OF ALASKA
DEPARTMENT OF FISH AND GAME
PRIVATE NONPROFIT PROGRAM

I. *INDENTIFICATION OF APPLICANT*

A. Applicant Information

Steve Reifenstuhl		NSRAA
Applicant Name		Organization
1308 SMC Rd.		907-747-6850
Address		Phone Number
Sitka	AK	99835
City	State	Zip

B. Hatchery Information

Medvejie Hatchery	#16
Hatchery Name	PNP Permit Number

II. *STATEMENT OF APPLICANT'S GOALS AND OBJECTIVES*

A. Describe the nature of the requested alteration, why you have decided to request it, and what you generally expect to accomplish by the expansion of your program, including answers to the following questions. Will the proposed project affect wild salmon stocks or existing fisheries? How will a significant contribution to common property fisheries be made? How will potential effects and interactions between introduced or enhanced stocks and wild stocks be assessed? What marking and recovery studies are being proposed that will allow the project to be evaluated? What are the potential benefits to fisheries or wild stocks from the proposed project? Has this project been discussed with the department's area or regional management biologists? (Attach additional pages as necessary.)

Please see attached narrative, graphs, & tables

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PAR Medvejie Chum Salmon Egg Increase 10 million

Medvejie and Deep Inlet chum fisheries have been important to commercial salmon trollers, seiners and gillnetters for over twenty-five years. The three groups share in the benefits of the program and an increase of 10 million eggs will result in an additional 180,000 to 270,000 adult chum salmon or roughly $1.2 to the fleet. The additional fry are proposed for release at Medvejie at Bear Cove.

Allocation Plan Effect: Deep Inlet management plan is flexible and therefore NSRAA board can and has shifted harvest from one gear type to another through management decisions. The ratio of fishing time is set by the Board of Fisheries for the seine and gillnet gear groups in Deep Inlet, but within those broad definitions the NSRAA board can alter fishing time, days, area, closures, openings, and more on an annual and inseason basis. Since 2009 the Deep Inlet management structure attempts to benefit trollers and seiners; an increase of 10 million eggs will aid in the effort to rectifying the allocation imbalance. Ten million eggs should translate to an additional 200,000 to 300,000 adults. Based on '09 & '10 harvest rates the gillnet portion has decreased from 32% (previous 5-year average) to 21% with a commensurate increase in seine and troll catch the past two years. Therefore the adult portion caught in Deep Inlet & Eastern Channel fisheries is expected to increase by 150,000 to 225,000 chum, with the seine and troll fleet harvesting 79% and the gillnet fleet netting the balance of 21%.

Percent of Commercial Catch – Deep Inlet fishery (includes traditional seine)

Period	*Schedule*	*Seine %*	*Gillnet %*	*Troll %*
2004-08 avg. (5yr)	2:1	51%	32%	17%
2009-10 avg. (2yr)	1:1	65%	21%	14%
	change	+14%	-11%	-3%

In terms of value, the seine and troll fleets will garner the lions share at $960,000, a significant amount. The disparity extant as of 2010 Allocation numbers is on the order of $5 million that the trollers and seiners need to make up annually.

Mid-points of target ranges>		28.8%	45.4%	25.9%	100.0%
		Gear			
Period	PROJECTED	troll	purse	Drift	TOTAL
2011	$ 31,393,000	9,035,000	14,242,000	8,116,000	31,393,000
2012	$ 31,393,000	9,035,000	14,242,000	8,116,000	31,393,000
2013	$ 31,393,000	9,035,000	14,242,000	8,116,000	31,393,000
2014	$ 31,393,000	9,035,000	14,242,000	8,116,000	31,393,000
2015	$ 31,393,000	9,035,000	14,242,000	8,116,000	31,393,000
5-yr	$ 156,965,000	$ 45,175,000	$ 71,210,000	$ 40,580,000	$ 156,965,000
		28.8%	45.4%	25.9%	
11-15 target		9,035,000	14,242,000	8,116,000	31,393,000
06-10*		$ 5,402,000	$ 12,944,000	$ 13,040,000	$ 31,393,000
Change required		3,628,000	1,298,000	(4,924,000)	-
Percent change from 06-10*		67%	10%	-38%	

Efficiency & Maximization of Benefit to Cost: Medvejie Hatchery expanded in 2003 using Mitigation Funds. The design capacity of the new building was 35 million eggs and together with existing chum incubation buildings the total design capacity was 75 million. NSRAA has built its chum program since then with an eye toward maximum capacity. A 10 million egg increase will take the facility to that level.

In addition to maximizing capacity, an additional 10 million eggs will increase the benefit to cost ratio due to reasons of economy of scale. The additional costs are modest because most of the infrastructure and personnel are already in place.

Broodstock Management: In three of the last five years NSRAA has had to capture adult chum salmon at Deep Inlet for transport to Medvejie due to a shortage of fish at the hatchery for broodstock. In 2010 we captured and transported 30,000 adult chum from Deep Inlet to Bear Cove. In the past ten years NSRAA has struggled to some degree to get sufficient broodstock back to the hatchery. Two of the years we have fallen short of our egg goal.

The intense nature of the fisheries in Sitka Sound and Deep Inlet prevent sufficient adults from returning to Bear Cove/Medvejie Hatchery. The fall chum stock (Medvejie) returns in early August through early September when troll, gillnet, and seine fisheries reach their peak in Sitka Sound. A major troll fishery targeting chum salmon operates throughout Sitka Sound and Eastern Channel in August. Even during the department's coho troll closure, chum trolling remains open. Pink salmon directed seine fisheries begin in late July and continue through late August. These 'pink' fisheries target chum salmon transiting the Sound and Eastern Channel and can operate from two to five days per week.

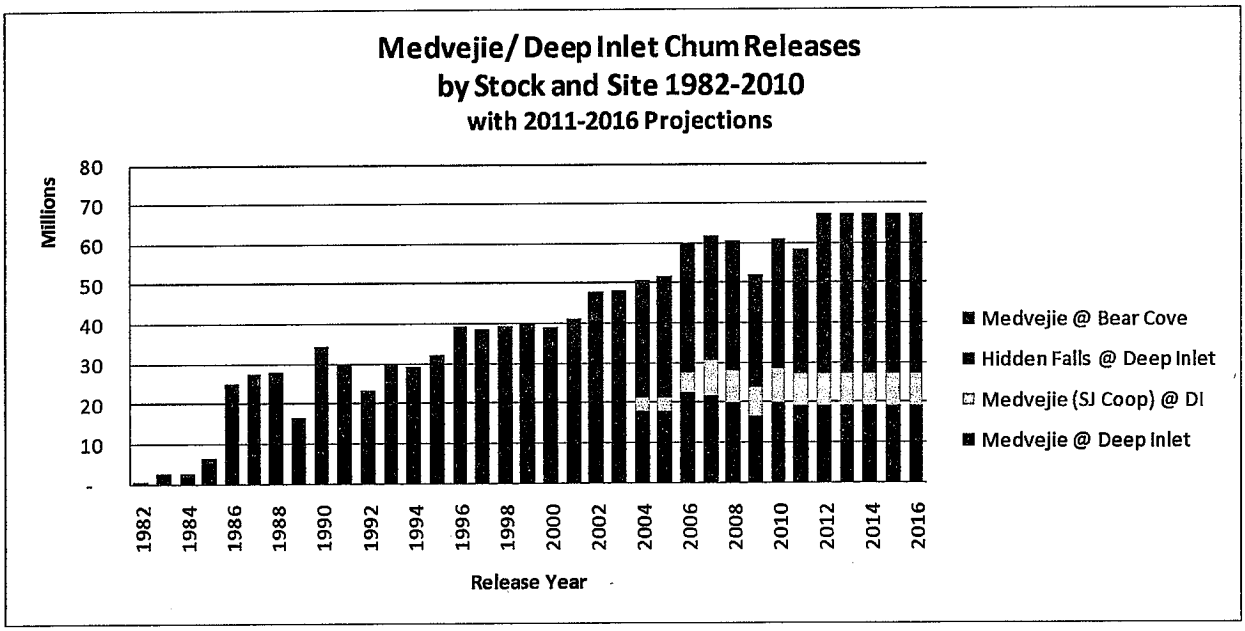
Deep Inlet has rotational fisheries operating seven days per week resulting in few fish avoiding nets or hooks. Adult chum salmon tagging studies demonstrate that fish bound for Medvejie often transit or revisit Deep Inlet more than once and therefore have a high probability of being caught. The combination of traditional fisheries and seven day-a-week rotational fisheries has decreased the number of chum getting back to Medvejie in the past five years.

Medvejie Deep Inlet Cost Recovery
Bear Cove Harvest SHA (in millions)

Year	Total Pounds	Bear Cove Pounds	Percent Silver Bay
1997	2.4	1.3	56%
1998	2.5	0.6	24%
1999	3.1	1.2	39%
2000	2.9	0.6	21%
2001	1.0	0.0	1%
2002	1.6	0.0	3%
2003	1.4	0.2	16%
2004	3.9	1.3	34%
2005	4.1	0.8	21%
2006	2.9	0.7	24%
2007	2.4	0.3	11%
2008	2.2	-	0%
2009	1.1	-	0%
2010	1.2	-	0%
Totals	32.5	7.2	22%

Table includes both Hidden Falls and Medvejie stocks in Total pounds & Bear Cove pounds

Increasing broodstock releases should increase the return of adults and also contribute to the voracious troll and seine fisheries. Approximately 60,000 broodstock are needed currently, but would increase to 70,000 with an increase of 10 million eggs. The recent five year exploitation rate provides between 30,000 and 60,000 adult chum to Bear Cove. By increasing the release by nine million fry we can expect the adults returning to Bear Cove to roughly double. In the event of excess broodstock NSRAA would harvest the surplus for cost recovery. Cost recovery has been done annually at Bear Cove prior to August 7 to insure no Hidden Falls stock are taken for broodstock. Surplus fall stock was common in the 1990's at Bear Cove and cost recovery harvest was used to manage for correct number of brood fish.



1. Will the proposed project affect wild salmon stocks or existing fisheries?

An increase of 200,000 to 300,000 adult chum salmon transiting Sitka Sound will not negatively affect wild stocks. The Deep Inlet and Medvejie releases/fishery has been in operation for nearly thirty years and has contributed significantly to troll, seine, gillnet, and sport charter fisheries. At the same time the Nakwasina River fall chum stock has remained productive. ADF&G index streams in the Northern Southeast Outside have seen low stray rates ranging from less than 5% to the 5 to 10% category.

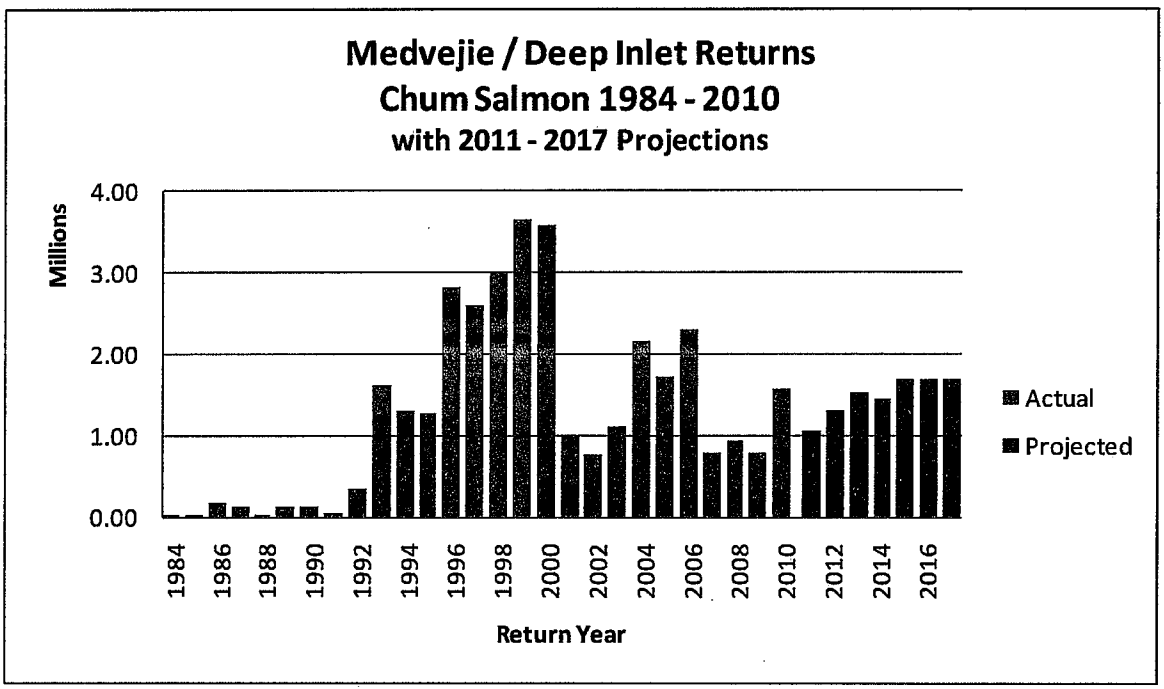
The increase would positively affect pink salmon directed seine fisheries and the troll fishery in Sitka Sound and Deep Inlet. The seine fishery targets chum salmon along Makhnati Rock, the Eckholms, Silver Point, Entry Point during pink salmon openings. Currently one chum salmon has a value 5 to 6 times the value of a single pink salmon and the positioning of the boats along known chum salmon entry points during these fisheries proves the point. ADF&G management would not need to change and would likely be procecuted similarly to the recent ten years, and therefore would not complicate pink salmon management. The troll fishery in Sitka Sound is managed for chinook, coho, but primarily chum salmon during late July and August. Regulation allow trollers to harvest chum salmon in Sitka Sound during the ADF&G coho troll closure, a strong statement the department believes the troll fishery does not negatively affect wild coho escapements.

2. How will a significant contribution to common property fisheries be made?

The long term average contribution to the fisheries for the Deep Inlet/Medvejie program is 80%, well above the guidline contribution of 70%. There is no difficulty getting high exploitation rates on the returning adults, but rather getting sufficient adults through the multiple fisheries that occur seven day per week over a wide area.

NSRAA will continue to have a rotational fishery in Deep Inlet seven days per week from late June through mid- September. Traditional troll and seine fisheries managed by the department will continue in Sitka Sound . In years when the abundance index for chinook is low Sitka Sound remains open seven days per week for chum trolling. In years of high pink salmon abundance, areas in Sitka Sound frequently open to the seine fleet, although many seiners take the opportunity to target chum salmon.

If the exploitation rate remains at 80% 160,000 to 240,000 chum from the proposed increase would be caught in commercial fisheries. Therefore approximately 30,000 to 60,000 chum might make it to Medvejie. This estimate is likely high because NSRAA believes the troll and seine fleets take a higher proportion of the Medvejie bound fish due to exposure to the Deep Inlet fishery as well as the traditional fisheries in Sitka Sound.



3. How will potential effects and interactions between introduced or enhanced stocks and wild stocks be assessed?

As of 2010 NSRAA marks 100% of the chum released from Medvejie and Deep Inlet. NSRAA operates a weir at Salmon Lake for counting all salmon that enter Salmon Lake including chum salmon. Otolith samples could be taken at the weir to assess hatchery/wild proportion. ADF&G counts and monitors chum index streams in the Northern Outer Coast and will likely continue this effort.

NSRAA operates the Salmon Lake weir to estimate coho escapement in order to assess whether seine, troll, and gillnet fisheries exploit Salmon Lake coho and negatively affect productivity. In fact coho escapements to Salmon Lake have been robust.

Table 9. **Medvejie/Deep Inlet Chum**
Commercial, Cost Recovery, Rack Catch Data

Return Year	Return (No. of Fish)	Seine	Troll	Gillnet	Sport	Cost Rec.	Rack/Other	Total Commercial	Comm %	Seine%	Troll%	Gillnet%	CR%
1984	1,600	-	-	-	-		1,600	-	-	-	-	-	-
1985	39,300	-	-	-	-		39,300	-	-	-	-	-	-
1986	181,743	65,000	-	-	-	60,000	56,743	65,000	36%	36%	-	-	33%
1987	132,403	6,000	-	-	-	91,678	34,725	6,000	5%	5%	-	-	69%
1988	42,510	500	1,000	-	-	26,419	14,591	1,500	4%	1%	2%	-	62%
1989	131,307	-	29,992	-	-	60,018	41,297	29,992	23%	-	23%	-	46%
1990	118,946	-	25,422	-	-	71,724	21,800	25,422	21%	-	21%	-	60%
1991	53,962	-	-	-	-	41,180	12,782	-	-	-	-	-	76%
1992	343,728	165,089	15,000	-	-	115,786	47,853	180,089	52%	48%	4%	-	34%
1993	1,635,231	457,148	449,660	373,306	3,400	310,843	40,874	1,280,114	78%	28%	27%	23%	19%
1994	1,307,610	527,822	271,369	159,913	2,158	279,902	66,446	959,104	73%	40%	21%	12%	21%
1995	1,287,743	523,373	190,790	408,643	932	96,757	67,248	1,122,806	87%	41%	15%	32%	8%
1996	2,819,499	1,834,025	321,331	188,586	6,164	383,714	85,679	2,343,942	83%	65%	11%	7%	14%
1997	2,595,025	1,613,687	290,216	361,350	nd	283,712	48,060	2,265,253	87%	62%	11%	14%	11%
1998	3,019,966	2,044,829	100,894	493,744	nd	317,317	63,182	2,639,467	87%	68%	3%	16%	11%
1999	3,662,701	2,602,058	67,348	608,452	nd	334,720	50,123	3,277,858	89%	71%	2%	17%	9%
2000	3,571,709	2,159,519	449,625	619,501	nd	313,529	29,535	3,228,645	90%	60%	13%	17%	9%
2001	1,020,368	388,975	188,700	267,158	nd	132,201	43,334	844,833	83%	38%	18%	26%	13%
2002	768,555	285,345	80,585	186,584	nd	176,926	39,115	552,514	72%	37%	10%	24%	23%
2003	1,107,909	528,146	87,582	210,948	nd	230,332	50,901	826,676	75%	48%	8%	19%	21%
2004	2,161,220	1,023,757	145,858	421,070	nd	502,862	67,673	1,590,685	74%	47%	7%	19%	23%
2005	1,725,312	564,171	165,046	430,655	nd	513,044	52,396	1,159,872	67%	33%	10%	25%	30%
2006	2,303,503	1,120,211	141,145	651,689	nd	333,063	57,395	1,913,045	83%	49%	6%	28%	14%
2007	803,582	112,850	179,084	113,091	nd	327,308	71,249	405,025	50%	14%	22%	14%	41%
2008	927,034	362,862	54,718	209,727	nd	265,644	34,083	627,307	68%	39%	6%	23%	29%
2009	787,827	348,854	109,028	119,852	nd	158,193	51,900	577,734	73%	44%	14%	15%	20%
2010	1,562,679	953,962	117,838	295,478	nd	147,401	48,000	1,367,278	87%	61%	8%	19%	9%
	34,112,972	17,688,183	3,482,231	6,119,747	12,654	5,574,273	1,235,884	27,290,161	80%	52%	10%	18%	16%

Notes:
1996 Cost recovery includes 275,421 regular cost recovery and 108,293 joint venture roe fish

	Return (No. of Fish)	Seine	Troll	Gillnet	Sport	Cost Rec.	Rack/Other	Total Commercial	Comm %	Seine%	Troll%	Gillnet%	CR%
Average @ production levels (89-10 returns):													
	1,599,243	838,890	164,345	291,417	1,808	254,103	49,887	1,294,651	71%	43%	11%	17%	24%
Average of returns >1 million chum (93-01,03-06,10 returns):													
	2,127,177	1,167,263	213,386	392,178	3,164	298,528	54,918	1,772,827	82%	51%	11%	20%	15%
Average - last 5 years (06-10)													
	1,276,925	579,748	120,363	277,967	#DIV/0!	246,322	52,525	978,078	72%	41%	11%	20%	23%
		59.3%	12.3%	28.4%									
Average - last 10 years (01-10)													
	1,316,799	568,913	126,958	290,625	#DIV/0!	278,697	51,605	986,497	73%	41%	11%	21%	22%

Allocation - Estimate to Rebalance

Most Recent 5-year period (4th & 5ths year may be preliminary data)

Area (N-S)	(All)
Group	(All)
Agency	(All)
Project	(All)
Species	(All)

Sum of Value	Year					
Gear	2006	2007	2008	2009	2010	Grand Total
troll	4,192,671	4,728,923	7,320,371	4,079,332	6,723,464	27,044,760
seine	15,109,033	6,531,971	16,158,998	12,753,412	14,168,369	64,721,784
gillnet	12,215,370	8,851,525	16,385,073	12,535,049	15,215,393	65,202,410
Grand Total	31,517,075	20,112,418	39,864,442	29,367,793	36,107,227	156,968,954

**2009 data is preliminary (prices final)*
**2010 data is preliminary*

Gear	2006-10 Average	Percent	Target Range	MidPoint	Under/Over MidPoint
troll	$ 5,409,000	17%	27-32%	28.8%	-11.6%
seine	$ 12,944,000	41%	44-49%	45.4%	-4.1%
gillnet	$ 13,040,000	42%	24-29%	25.9%	15.7%
Total	$ 31,393,000	100%		100.0%	

Commercial Ex-Vessel Value of All SE Enhanced Salmon

Calculation of Adjustments needed to bring gear groups back into range.

The latest 5-year average (2006-10) for total enhanced value is $31,393,000 per year.

Using this value as the estimated annual value for the upcoming 5-year period, and applying the Mid-points of the target range:

Mid-points of target ranges->		28.8%	45.4%	25.9%	100.0%
		Gear			
Period	PROJECTED	troll	purse	Drift	TOTAL
2011	$ 31,393,000	9,035,000	14,242,000	8,116,000	31,393,000
2012	$ 31,393,000	9,035,000	14,242,000	8,116,000	31,393,000
2013	$ 31,393,000	9,035,000	14,242,000	8,116,000	31,393,000
2014	$ 31,393,000	9,035,000	14,242,000	8,116,000	31,393,000
2015	$ 31,393,000	9,035,000	14,242,000	8,116,000	31,393,000
5-yr	$ 156,965,000	$ 45,175,000	$ 71,210,000	$ 40,580,000	$ 156,965,000
		28.8%	45.4%	25.9%	
11-15 target		9,035,000	14,242,000	8,116,000	31,393,000
06-10*		$ 5,409,000	$ 12,944,000	$ 13,040,000	$ 31,393,000
Change required		3,626,000	1,298,000	(4,924,000)	-
Percent change from 06-10*		67%	10%	-38%	

III. *IMPACTS ON EXISTING HATCHERY PROGRAM*

A. Present Permitted Capacity
(numbers of green eggs by species)

Pink	300,000	Coho	325,000 Salmon L stock
Chum	Summer chum: 23 million Fall chum: 43 million	Chinook	5.2 million Andrews C stock
Sockeye		Other	

B. Capacity After Request
(numbers of green eggs by species)

Pink	no change	Coho	no change
Chum	Summer chum: 23 million Fall chum: 53 million	Chinook	no change
Sockeye		Other	

C. Water Use

1. **List the total amount of water available and the source**.

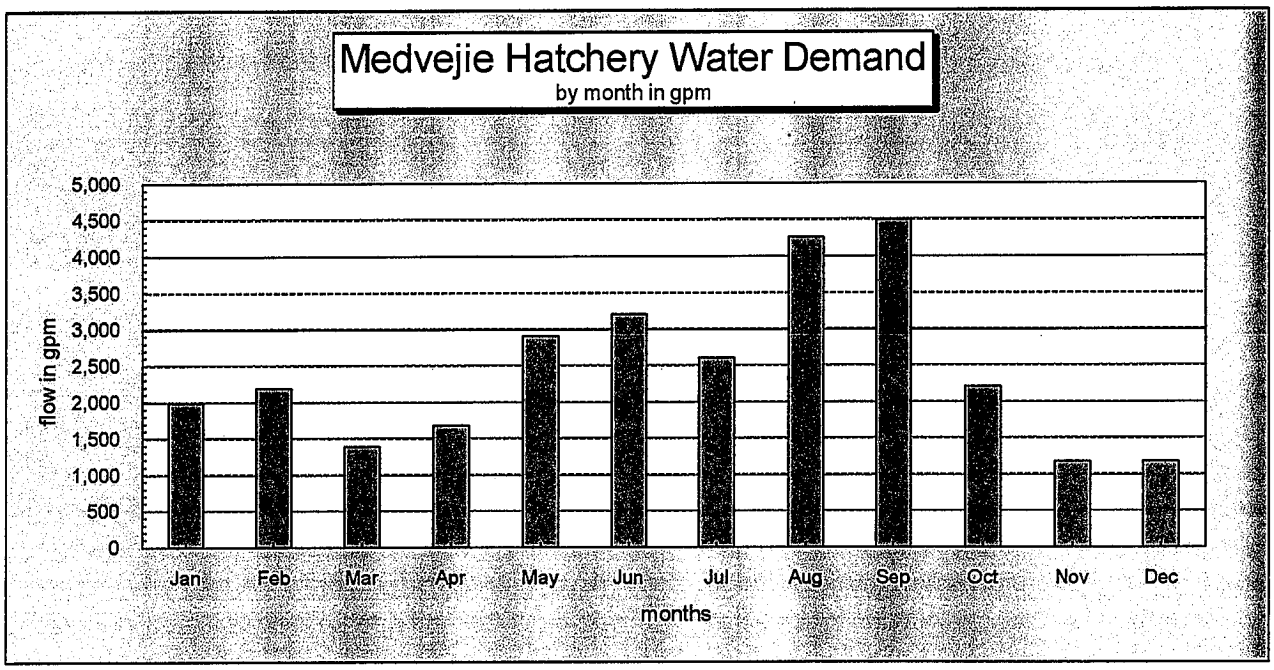
Approximately 20 cfs or 10,000 gpm is available from Medvejie Creek, and about 10 cfs or 4,500 gpm is consumed. Two large lakes store water in the watershed - Indigo Lake at 3,000' elevation and Medvejie Lake at 200' elev.

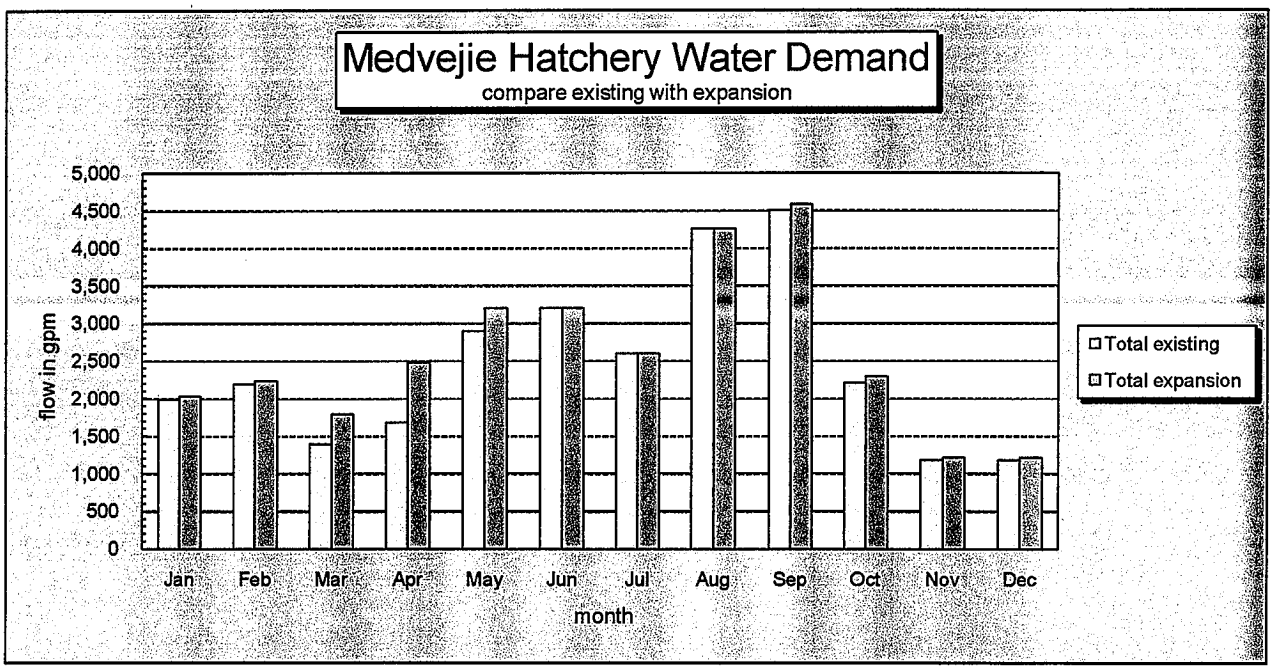
2. **List the amount of water presently being used**.

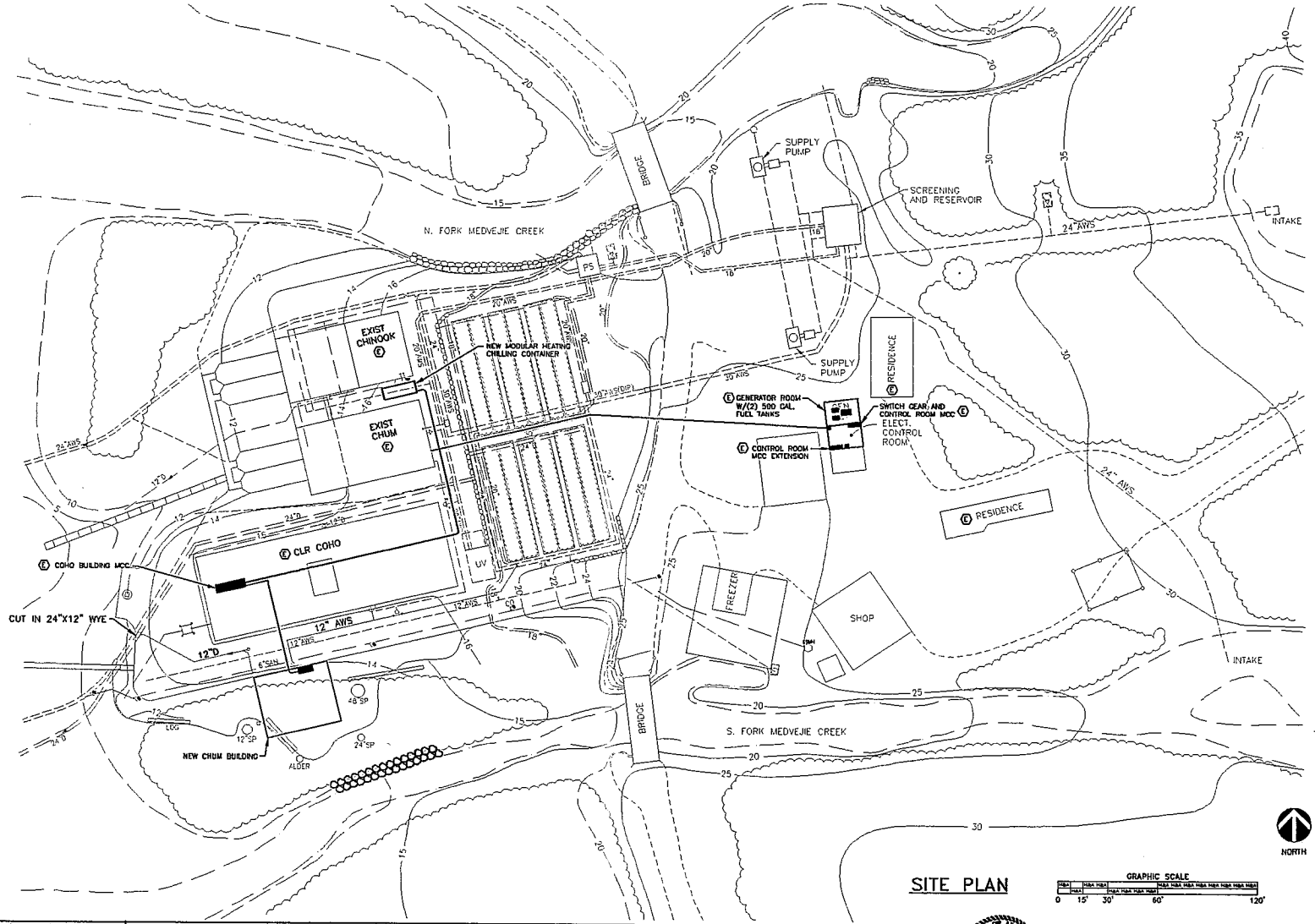
10 cfs (see water use graph) is used at the peak demand.

3. **List the additional amount of water needed for this alteration**.

Approximately 180 gallons/minute is needed during incubation. Adequate water is available and within granted water rights of 10 cfs. Chinook numbers have been reduced and water management improved and therefore water volume is not a limiting factor.


Medvejie Hatchery Water Demand
by month in gpm
flow in gpm
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
months


Medvejie Hatchery Water Demand
compare existing with expansion
flow in gpm
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
month
Total existing
Total expansion



SITE PLAN

GRAPHIC SCALE
0 15' 30' 60' 120'

HAIGHT & ASSOCIATES, INC.
CONSULTING ENGINEERS
418 Harris Street, Juneau, Alaska 99801(907)586-9788

REV	DATE	DES	CHECK	APPROVALS	REVISION DESCRIPTION

DATE: OCT 2002
DESIGNED:
DRAWN:
CHECKED:
APPROVED:
CIVIL REVIEW:
ARCH REVIEW:
STRUC REVIEW:
MECH REVIEW:

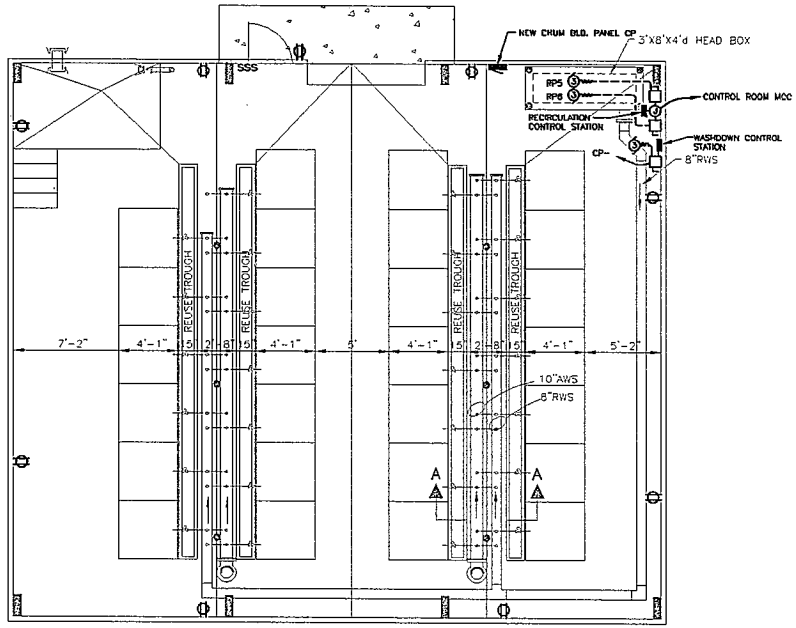
This drawing is full size when 22"x 34" or is reduced to half size when 11"x17"

Tetra Tech/KCM, Inc.
230 South Franklin
Juneau, AK 99801
907-586-6400 Fax: 907-463-3677

NSRAA
MEDVEJIE CREEK HATCHERY IMPROVEMENTS

SITE PLAN

FILE NO:	E1.DWG
PROJECT NO:	2290112
DWG NO:	E1
SHEET:	X OF X



NEW CHUM BUILDING

GRAPHIC SCALE
0 1' 2' 4' 8' 16'

NORTH

HAIGHT & ASSOCIATES, INC.
CONSULTING ENGINEERS
418 Harris Street, Juneau,
Alaska 99801(907)586-9788

REV	DATE	DES	CHECK	APPROVALS	REVISION DESCRIPTION

DATE: OCT 2002
DESIGNED:
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Tetra Tech/KCM, Inc.
230 South Franklin
Juneau, AK 99801
907-586-6400 Fax: 907-463-3677

STATE OF ALASKA 49th
R.C. HAIGHT EE 4800

NSRAA
MEDVEJIE CREEK HATCHERY IMPROVEMENTS

POWER AND LIGHTING PLAN

FILE NO:	E3.DWG
PROJECT NO:	2290112
DWG NO:	E3
SHEET:	X OF X